
Four New Taxa and One Rediscovered Species of *Mouriri* (Melastomataceae)

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ABSTRACT. Three new species of *Mouriri* from midwestern and southwestern Colombia and eastern Brazil are described and illustrated, as is a new subspecies of *Mouriri grandiflora* from western Amazonia. *Mouriri tessmannii*, its type and only known specimen destroyed at Berlin, has been re-collected and is redescribed and illustrated.

***Mouriri colombiana* Morley, sp. nov.** TYPE: Colombia. Antioquia: Municipio de San Luís, Cañón del Río Claro, sector norte, margen derecha, 5°53'N, 74°39'W, 3 June 1984, *Alvaro Cogollo 1796* (holotype, COL; isotypes, JAUM, MO). Figure 1.

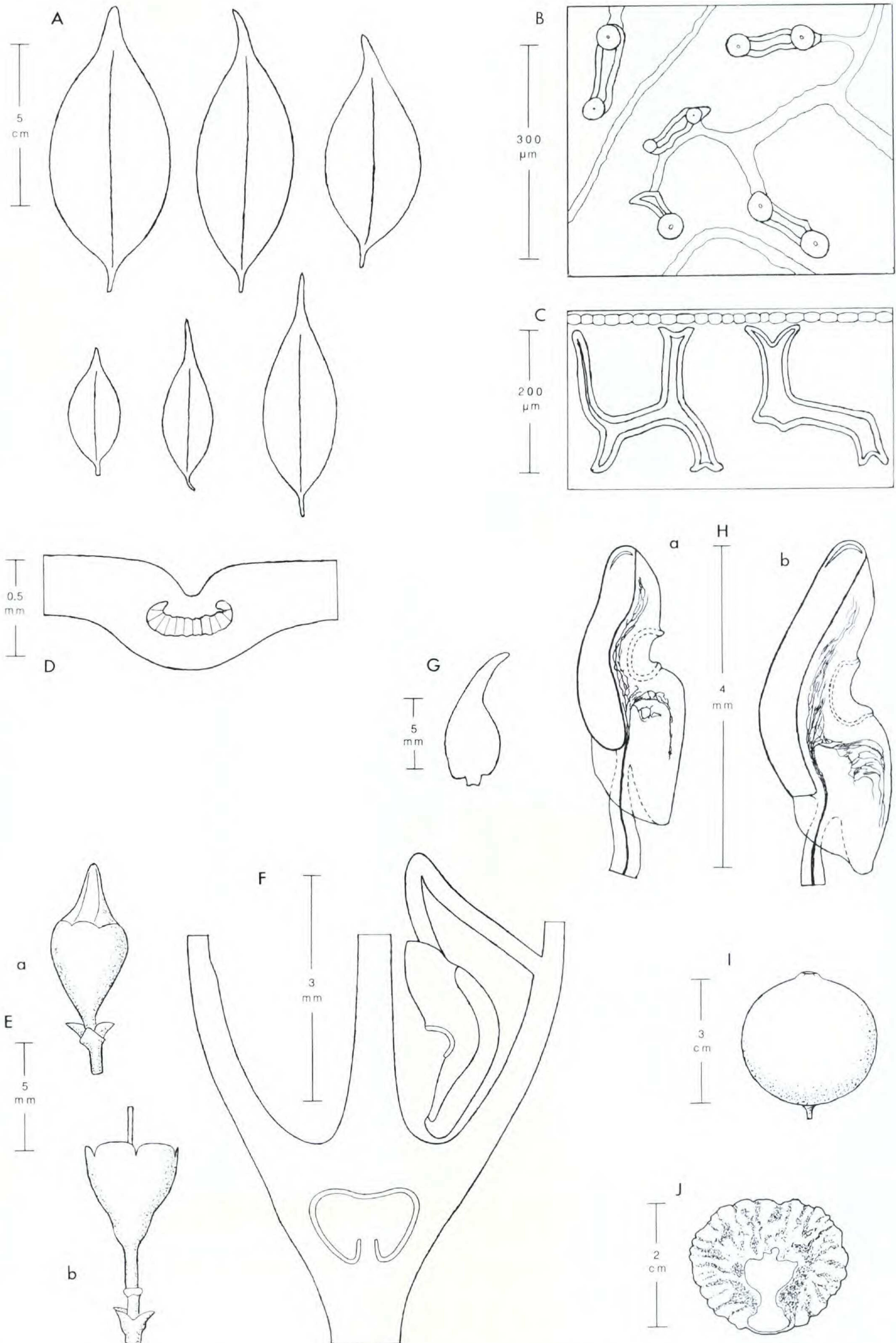
Arbor usque 26 m alta; laminae 2.9–8.6 cm longae, 1.8–3.5 plo longiorae quam latiorae; cryptae stomatophorae nullae, hypodermis absens; pedunculi plerumque 1-flori, pedicelli 0.8–3.5 mm longi; calyx 0.5–0.8 mm findens inter lobos sub anthesi, lobis 1–1.3 mm longis ab staminibus; antherae 3.4–4.1 mm longae, thecae 2.5–3.3 mm longae, rimis apicalibus dehiscentes; ovarium 1-loculare, ovula 8–11; fructus globosus exterior viscosissimo; semina 1 vel fortasse 2, ca. 22 mm alta, 24 mm lata, 11 mm crassa.

Glabrous tree to 26 m high; young twigs rounded. Petioles 3–6 mm long; blades 2.9–8.6 cm long, 1.4–3.8 mm wide, 1.8–3.5 times as long as wide, elliptic to ovate-elliptic or narrowly so, acuminate to abruptly so to caudate at apex, acute and abruptly attenuate at base; midrib grooved above, low-rounded below; lateral nerves slightly visible to invisible above and below when dry; leaves drying dark olive green to black. Midrib xylem open above; stomatal crypts none; upper epidermis one cell thick, lacking mucilaginous walls; hypodermis none; crystals occasional in the upper spongy parenchyma; terminal sclereids stellate with a strong columnar tendency, often with a horizontal central body 2–8 times as long as wide with a columnar extension at each end, sometimes entirely columnar, the columnar parts

branching at the epidermis. Flowers axillary and terminal, the peduncles one or two per axil, each 1- or rarely 2- or 3-flowered, 0.5–4 mm long to base of pedicel measured along the axis with (1–)2(–3) internodes in that length; bracts 0.7–1.5 mm long, ovate-triangular, acute, persistent in fruit or deciduous. Flowers pentamerous; true pedicels 0.8–3.5 mm long; calyx including inferior ovary 4–5 mm long, obconic to campanulate; free hypanthium 2.3–2.5 mm long; calyx lobes before anthesis low-rounded and sometimes with a very small apiculum, 0.2–0.4 mm long, 1.2–1.4 mm wide, 1–1.3 mm long when measured from the stamen attachment, the calyx splitting between the lobes at anthesis a distance of 0.5–0.8 mm, the lobes then 1.7–2.2 mm wide. Petals yellow, 10–11 mm long, 3.5–4 mm wide, narrowly ovate-triangular, acuminate, with a short claw at base. Antesepalous filaments 6.5–7 mm long, antepetalous ones 8–9 mm long; anthers yellow-orange, 3.4–4.1 mm long; thecae 2.5–3.3 mm long, dehiscing by apical slits; gland 0.4–0.8 mm long, 1.3–1.9 mm from apex of anther when measured from center of gland; cauda 0.8–1 mm long. Ovary 1-locular but with a half partition, the ovules technically axile, 8–11; style 13–15 mm long. All flower parts drying blackish except for the anthers. Fruits globose, bearing the remains of the calyx, 23–40 mm diam. when dry, estimated 27–50 mm when fresh, then covered with a sticky transparent resin, green to greenish yellow. Seeds 1 or sometimes 2, roughly half spherical, 16–28 mm wide, one studied, this 22.2 mm high, 24 mm wide, 11 mm thick, with an irregular polished area at the base of the outer face 13 mm long by 8 mm wide, the remainder of the outer face irregularly grooved or wrinkled.

Distribution. Known only from an area in southern Antioquia, Colombia, about one-third of the way from Medellín to Bogotá.

Figure 1. *Mouriri colombiana* Morley. —A. Leaves from various collections. —B. Cleared part of leaf blade showing veins and terminal sclereids. —C. Cross section of leaf blade showing sclereids and upper epidermis. —D. Cross section of leaf midrib. —E. Flowers: a, before anthesis (*Renteria 2797*); b, at anthesis (*Cogollo 1796*). —F. Longisection of flower before anthesis. —G. Petal. —H. Anthers, cleared to show veins inside: a, *Renteria 2797*;



b, *Cogollo 1796*. —I. Fruit (*Cogollo 1434*). —J. Seed, showing the hour-glass-shaped polished surface of the outer face (*Cogollo 1434*). (B, C, D, F, and G are *Cogollo 1796*.)

TABLE 1. *Mouriri colombiana* compared with the three most similar species in its section.

	<i>M. colombiana</i>	<i>M. collocarpa</i>	<i>M. oligantha</i>	<i>M. pauciflora</i>
Leaf l/w ratio	1.8–3.5	1.6–2.5	1.7–2.9 (–3.1)	(2.1–) 2.6–4.3
Hypodermis	absent	present	present	present
Number of flowers	1 (–3)	(1–) 3–15	1	1
Ovary + calyx length (mm)	4–5	3.8–6	4.8–7	5–8
Calyx lobe length from stamen (mm)	1–1.3	1–1.9	2.1–4	1.8–3.5
Calyx splitting distance (mm)	0.5–0.8	1–1.4	2–3	(1.2–) 2–3
Anther length (mm)	3.4–4.1	2.1–2.6	2.4–4.4	2.4–4.4
Theca length (mm)	2.5–3.3	1.6–2.3	2.1–2.8	2–3.2
Apical slit dehiscence	present	present	absent	absent
Gland length (mm)	0.4–0.8	0.8–1.4	1.1–1.9	0.6–1
Number of locules	1	3–5	3–4	2
Number of ovules	8–11	12–15	9–12	6–9

Mouriri colombiana is clearly placed in subgenus *Taphroxylon* sect. *Taphroxylon* because of the midrib xylem, which is open above, the evergreen leaves lacking stomatal crypts, the axile placentation, and the long anther thecae, which extend well below the gland. Its affinity to plants of the above section was first recognized by A. Cogollo, who identified his collections 1254 and 1434 as being related to *M. collocarpa* Ducke. In its section, *M. colombiana* is most readily distinguished from *M. trunciflora* Ducke by the latter's numerous ovules, compared to the 8–11 of the new species. The next most easily eliminated species is the widespread *M. acutiflora* Naudin, from which *M. colombiana* differs in lacking a hypodermis and in having the flowers mostly borne singly, and in its darker colors on drying, apical slit dehiscence of the anthers, and larger seeds. The remaining three species of the group are compared with the new one in Table 1. *Mouriri colombiana* is best distinguished from *M. collocarpa* by the former's lack of a hypodermis, mostly single flowers, short splitting distance of the calyx, longer anthers and thecae, and single ovary locule; from *M. oligantha* Pilger by the narrow leaves, lack of a hypodermis, short calyx lobes, short splitting distance, apical slit dehiscence, and single locule; and from *M. pauciflora* Spruce ex Triana by the lack of a hypodermis, short calyx lobes and splitting distance, apical slit dehiscence, and somewhat larger number of ovules. The half partition in the ovaries examined suggests that a full partition might sometimes occur, giving the two locules also found in *M. pauciflora*. *Mouriri colombiana* appears to combine several relatively unmodified characters with advanced ones. Examples of the former are the lack

of a hypodermis in the leaf and the short calyx lobes with their short splitting distance. Advanced features are the mostly single flowers, the unusual anther shape, which resembles that of *M. pauciflora*, the theca's apical slit dehiscence, the single ovary locule, and small number of ovules.

Paratypes. COLOMBIA. **Antioquia:** Río Claro, margen izquierda, 600 m, 16 Sep. 1982 (buds), *E. Rentería* & *A. Cogollo* 2705 (JAUM, MO); Alto Rico, 9 Oct. 1982 (buds), *E. Rentería*, *A. Cogollo* & *C. Estrada* 2797 (JAUM, MO); Autopista Medellín–Bogotá, sector Río Samaná–Río Claro, camino hacia la vereda La Primavera, 790 m, 13 Nov. 1982 (fr), *A. Cogollo* & *C. C. Estrada* 227 (JAUM, MO), 2 km antes de la Josefina, zona muy perturbada, quebrada la salada, 800 m, 22 Sep. 1983 (fr), *S. E. Hoyos* & *J. J. Hernández* 378 (JAUM, MO); margen izquierda, 325 m, 3 May 1984 (fr), *A. Cogollo* 1683 (JAUM, MO); sector nor-occidental, margen izquierda 325–500 m, 8 Mar. 1984 (fr), *A. Cogollo* 1434 (JAUM, MO), 28 Jan. 1984 (fr), *A. Cogollo* 1254 (JAUM, MO); municipio de San Luis, quebrada “La Cristalina,” 6°N, 74°45'W, Bh-T/Bmh-T, Sector NW, 470–580 msnm, 4 Dec. 1986 (fr), *J. G. Ramírez* & *D. Cárdenas Lopez* 234 (MO), 700–550 msnm, 22 Jan. 1987 (fr), 368 (MO), Sector SE, 770–570 msnm, 23 Feb. 1987 (fr), 624 (MO), 770–500 msnm, 23 Mar. 1987, (fr) 719 (MO), 770–570 msnm, 24 Sep. 1987 (fl buds), 1616 (MO), 27 Oct. 1987 (fr), 1871, 1880 (MO), Carretera de Monteloro al Corregimiento el “Prodigio,” 6°4'N, 74°50'W, 950–600 msnm, 8 Mar. 1990 (fr), *D. Cárdenas L.* & *J. G. Ramírez* 2578 (MO).

***Mouriri impressinerva* Morley, sp. nov.** TYPE: Colombia. Nariño: 40 km E of Tumaco near Ecuador border, 50 m alt., moist forest S of Río Mira, 24 Nov. 1981, *A. Gentry et al.* 34902 (holotype, COL; isotype, MO). Figure 2.

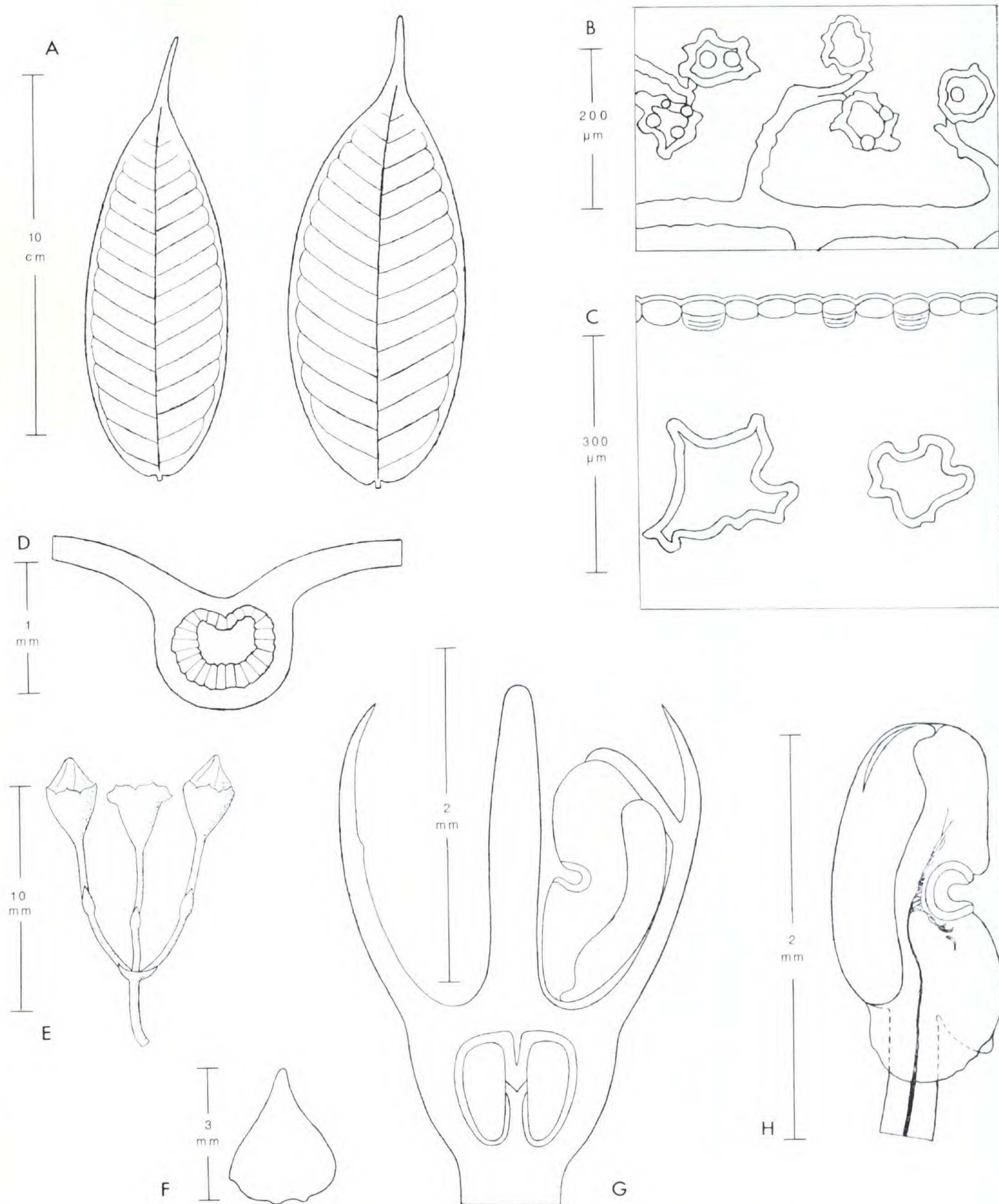


Figure 2. *Mouriri impressinerva* Morley (Gentry et al. 34902). —A. Leaves. —B. Cleared part of leaf blade showing veins and terminal sclereids. —C. Cross section of leaf blade showing sclereids and upper epidermis. —D. Cross section of leaf midrib. —E. Inflorescence. —F. Petal. —G. Longisection of flower before anthesis. —H. Anther, cleared to show the veins.

Arbor usque 4 m alta; laminae 12–18 cm longae, basi cordata incisura 0.5–1 mm profunda; superficies costae et nervorum lateralium sulcatae, paginae inferiores prominentes; cryptae stomatophorae nullae, hypodermis absens, sclerides terminales foliorum rectangulares usque sphaericae; pedicelli 3–6 mm longi; calyx ovarium includens 2.7–3 mm longus; antherae 1.4–1.9 mm longae,

thecae 1.2–1.5 mm longae; ovarium incomplete 2-loculare, ovula 6–7.

Glabrous tree 4 m high; young twigs narrowly 4-winged. Petioles 1–2 mm long; blades 12–18 cm long, 3.8–7.5 cm wide, elliptic to ovate-elliptic,

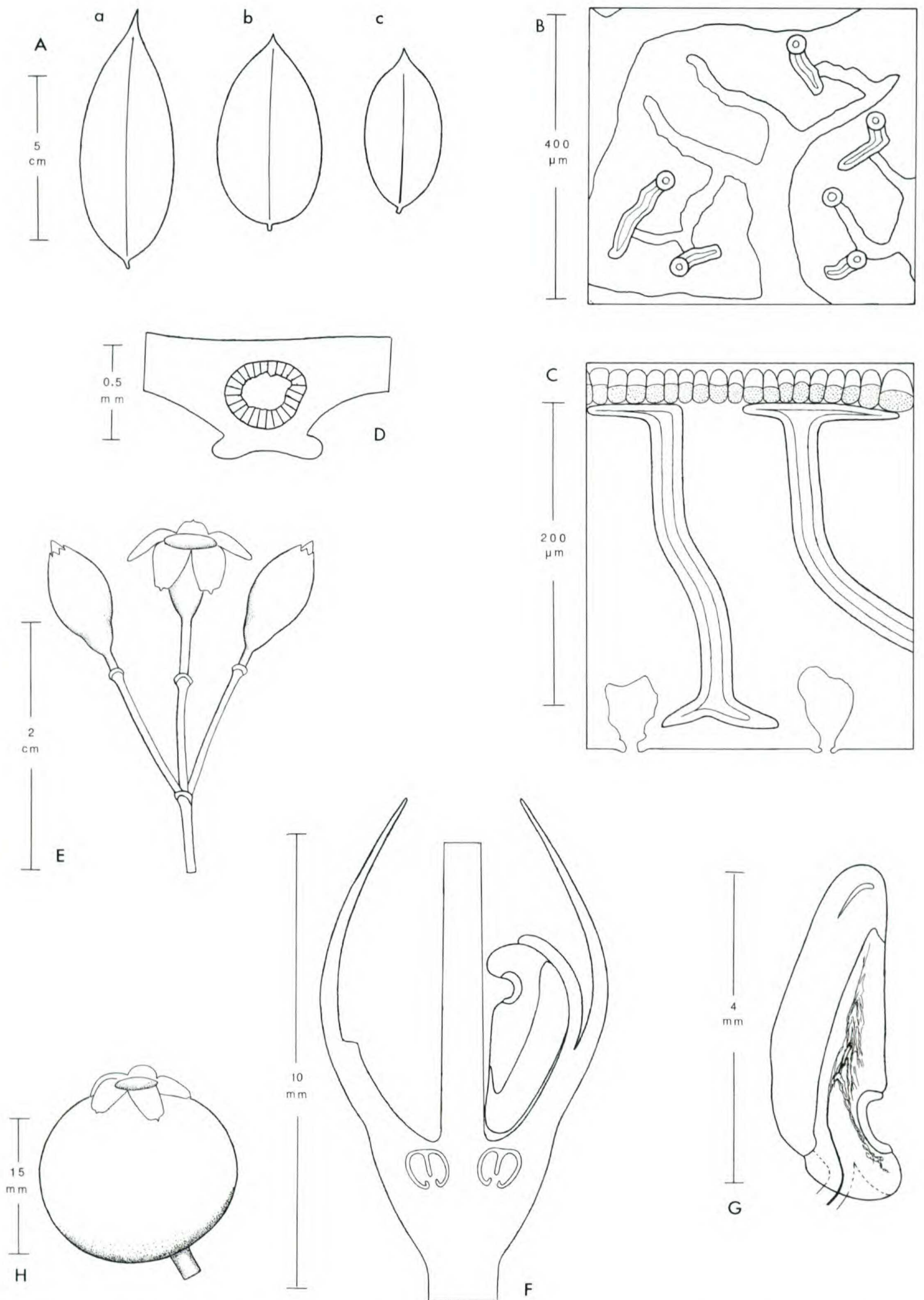


Figure 3. *Mouriri arenicola* Morley. —A. Leaves (a, b, *Araujo et al.* 8343; c, *Araujo et al.* 8335). —B. Cleared part of leaf blade showing veins and terminal sclereids. —C. Cross section of leaf blade showing sclereids, stomatal crypts, and upper epidermis. —D. Cross section of leaf midrib. —E. Inflorescence (composite of *Araujo et al.* 8335

abruptly caudate at apex, rounded to a shallowly cordate base, the notch 0.5–1 mm deep; midrib grooved above, prominent below and rounded near the base, becoming somewhat 2-angled at the middle and beyond; lateral nerves conspicuous, grooved above with marginal arcuate connecting nerves plane or slightly grooved, the lateral and marginal nerves prominent below. Midrib xylem tubular, depressed in the center above; stomatal crypts none; upper epidermis 1 cell thick with occasional cells with mucilaginous walls in which a few delicate layers are visible; hypodermis none; terminal sclereids rectangular to spherical, mostly 1–1.5 times as long as wide, with numerous short arms; all leaf tissues filled with tannin compounds. Flowers axillary and at leafless nodes of twigs to 6 mm thick; peduncles 1–3 per side, 1–3-flowered, 1.5–7.5 mm long to base of most distal pedicel with 1 or 2 internodes in that distance; bracts 1–2 mm long, ovate-triangular to narrowly so, variously deciduous after anthesis. Flowers pentamerous; true pedicels 3–6 mm long; calyx including inferior ovary 2.7–3 mm long, obconic at anthesis; free hypanthium 1.3–1.4 mm long; calyx lobes 0.3–0.4 mm long, 1.2–1.3 mm wide, truncate and apiculate, 0.4–0.6 mm long when measured from the stamen attachment; calyx not splitting between lobes at anthesis. Petals pink, triangular, broadly rounded at base, 2.4–3.3 mm long, 1.7–2.5 mm wide. Filaments unknown; anthers 1.4–1.9 mm long; thecae 1.2–1.5 mm long, dehiscing by apical slits; gland 0.1–0.3 mm long, 0.7–0.9 mm from apex of anther when measured from center of gland; cauda very short and blunt, 0.3–0.4 mm long. Ovary incompletely 2-locular, the ovules axile to free-central, 6 or 7; style early deciduous, unknown. Fruit and seed unknown.

Distribution. Known only from the type locality on the west side of the Andes in the far southwest corner of Colombia.

Mouriri impressinerva is distinguished from all other species in the genus by the combination of its impressed leaf venation, tubular midrib xylem, superficial stomata, tannin-filled leaves, occasional epidermal cells with mucilaginous walls, rectangular to spherical terminal foliar sclereids, medium-length pedicels, small flowers, and small anthers with relatively long thecae and very short caudas. There appear to be no close relatives in any known subgenus or section. The tubular xylem appears to place the species in the subgenus *Mouriri*, perhaps in the heterogeneous section *Litophyllum*, where the lack

of stomatal crypts, lack of a hypodermis, and small pedicellate flowers would also agree. However, the leaves with their impressed nerves and terminal sclereids like those of *M. sagotiana*, as well as the tannin-filled leaf tissues, suggest section *Brevipedillus* of subgenus *Taphroxylon*. Tubular midrib xylem is exceptionally found in *M. vernicosa* of *Brevipedillus*. On the other hand, the occasional mucilage walls in the epidermal cells, medium-length pedicels, and anther size and form are out of place in *Brevipedillus*. A tentative assignment of the new species to *Litophyllum* will have to suffice until the seeds are known, which will establish the subgenus for certain.

Mouriri arenicola Morley, sp. nov. TYPE: Brazil. Rio de Janeiro: Sistema de Dunas Dama Branca, baixio umido entre dunas orla, 10 Dec. 1987 (fl buds), *D. Araujo, L. Trindade & A. Gastão 8335* (holotype, GUA; isotype, MIN). Figure 3.

Frutex usque 3 m altus; petioli 1–2 mm long, laminae 3.5–8.1 cm longae, 1.5–3.6 cm latae; pagina inferior costae mediae anguste 2-alata ad angulos; cryptae stomatophorae Type II; sclerides foliorum columnares usque obliquae; calyx ovarium inferum includens 7–11 mm longus, lobi calycis 5, $\frac{1}{10}$ connati usque ad anthesem, tum ad lineas conjunctionis loborum rumpens, lobis tum trapezoideis; ovarium 4-loculare; placentae basiliares in quoque loculo, ovula 3 undique circum quamque placentam genita; fructus subglobosus, lobis calycis coronatus, 4-spermus.

Glabrous shrub to 3 m high, sometimes semi-climbing; young twigs narrowly 4-winged. Petioles 1–2 mm long; blades 3.5–8.1 cm long, 1.5–3.6 cm wide, elliptic to ovate-elliptic, abruptly acute or short-acuminate at apex, rounded to broadly acute at base; midrib plane above, narrowly 2-winged below; lateral nerves slightly to moderately visible above and below when dry, the upper surface then with numerous distinct raised points, which mark the ends of the columnar sclereids. Midrib xylem tubular; stomatal crypts Type II (see Morley, 1976), mostly elliptic to inverted-flask shape in vertical section, averaging in a leaf 25–50 μm diam., 22–27 μm high, 71–76 per mm^2 ; upper epidermis one cell thick, all cells with mucilage walls $\frac{2}{5}$ – $\frac{3}{4}$ the cell depth; hypodermis none; free stone cells present only in petiole; terminal sclereids columnar at least in the palisade layer, usually angling below, slender, with 1 or 2 branches at each end. Peduncles 1–2 per side, mostly axillary but sometimes at the upper leafless nodes, each 1–

← and 7443). —F. Longisection of flower before anthesis. —G. Anther, cleared to show veins. —H. Fruit (*Araujo 7443*). (B–D, F, G, *Araujo et al. 8335*.)

TABLE 2. *Mouriri arenicola* compared with the two most similar species in its section.

	<i>M. arenicola</i>	<i>M. arborea</i>	<i>M. megasperma</i>
Young twigs 4-winged	yes	yes-no	no
Free stone cells scattered the length of the midrib	no	no	yes
Petiole length (mm)	1-2	3-10	1.5-3.5
Blade length (cm)	3.5-8.1	7-18.5	7.7-10
Upper leaf surface, dry	numerous distinct raised points	smooth or irregular	smooth
Winged undermidrib	yes	yes	no
Stomatal crypt height	20-27 μm	23-34 μm	45-62 μm
Sclereids	columnar-angling	filiform	columnar-filiform
Peduncle length (mm)	4-20	4.7-1.8	2-6.3
Pedicel length (mm)	2-5	3.5-10.5	ca. 2.6
Ovary + calyx (mm)	7-11	10-17	
Calyx splitting	5 lobes	2-3 pieces	
Calyx retention	persistent	circumscissile	
Ovule number per placenta	3	4-6	
Fruit diam. (mm)	20-30?	20-30?	40-55
Number of seeds	4	4 (?)	5

3-flowered, 3.5-19 mm to base of most distal pedicel measured along the axes and with 1 or 2 internodes in that length; bracts ovate, early deciduous. True pedicels 2-5 mm long; ovary plus calyx in fully developed flower buds 7-11 mm long, ellipsoid to obovoid, the calyx lobes fused for ca. $\frac{1}{10}$ of their length, the free ends triangular, 0.3-0.8 mm long, 0.4-0.7 mm wide, the tip of the corolla protruding 1-1.5 mm between the free tips, the calyx splitting at anthesis into 5 regular trapezoid lobes, these 3.4-5 mm long, 3-3.8 mm wide at base, 1.5-2 mm wide at end; calyx limb 5.5-7 mm long measured from the stamen attachment; free hypanthium 2-2.5 mm long. Mature petals unknown. Mature filaments unknown; anthers 3.4-4.5 mm long; thecae 3.2-3.9 mm long, dehiscing by apical slits; gland 0.4-0.8 mm long, 2.5-3.4 mm from apex of anther when measured from center of gland; cauda 0.7-1.2 mm long. Ovary 4-locular; placentae basal in each locule with 3 ovules borne on all sides of a short basal column; mature style unknown. Immature fruit subglobose, 16-23 mm high, 20-23 mm diam., crowned with the calyx lobes, which surround an apical pit 1.5 mm deep; locules 4, each 1-seeded. Immature seeds with a smooth, hard, polished surface encircling the hilum but not yet extended to the distal part of the seed, the mature seed unknown.

Distribution. Dama Branca dune system, Cabo Frio, ca. 110 km east of Rio de Janeiro; from low to high and shady to sunny situations in the dune vegetation.

Mouriri arenicola falls in subgenus *Mouriri* because of its tubular midrib xylem, placentation in which the ovules encircle each placenta, and seed with a polished surface surrounding the hilum. The appropriate section is *Olisbeoides* because of the long sepals that remain fused till anthesis then split for 3.4 mm or more and are not circumscissile, and because of the large Type II stomatal crypts, which resemble those of *M. arborea* and *M. megasperma*. *Mouriri arenicola* is distinguished from *M. lunatanthera*, the least similar species in the section, by the former's acute to rounded leaf base, winged midrib, columnar sclereids, narrow flower and anthers, and 4-locular ovary. *Mouriri arenicola* is compared to *M. arborea* and *M. megasperma* in Table 2. The new species is distinguished from *M. megasperma* by the 4-winged twigs, smaller leaves, pimpled upper surface and visible nervation of the dry leaf, winged undermidrib, smaller stomatal crypts, longer peduncles, probable smaller fruits, and lesser seed number; and from *M. arborea* by the smaller leaves, distinctly pimpled upper surface of the dry leaf, columnar-angling sclereids, smaller flower, 5-lobed calyx at anthesis with the lobes persistent at least on the immature fruit, and the ovules only 3 per locule.

Mouriri arenicola is most similar to *M. arborea* and appears to be reduced from the forebears of that species in response to the isolated and harsh environment. Many of the characteristics of the new species are ones of size reduction, but the sclereid form and the regular separation and persistence of

the calyx lobes are independent of that trend and suggest a retention of a more primitive state than that developed in *M. arborea*.

The status of *M. sellowiana* (Berg) Burret, a plant yet to be re-collected in the type locality between Vitoria and Bahia, is still uncertain. If synonymous with *M. arborea*, as is probable, the description of its fruit as 21–30 mm high, 25–39 mm in diameter, and 4-seeded would add to the present knowledge of the fruit of that species.

Paratypes. BRAZIL. **Rio de Janeiro:** Mun. de Cabo Frio, Sistema de Dunas Dama Branca, restinga arbustiva fechada, Nome vulgar "Cotia amarela," 9 May 1986 (fr), *D. Araujo* 7443 (GUA), 10 Dec. 1987 (fl buds), *D. Araujo et al.* 8343 (GUA).

Mouriri grandiflora DC. subsp. ***puberula*** Morley, subsp. nov. TYPE: Colombia. Municipio de Leticia, Parque Nacional Natural Amacayacu, Centro Administrativo Mata-matá (Inderena), en zona de transición entre "varzea" y tierra alta ("restinga") al norte de la quebrada Mata-matá, 70°15'W, 3°47'S, 110 m, 13 Mar. 1991, *A. Rudas, F. del Aguila Joaquin & Gilberto Morán* 1584 (holotype, COL; isotypes, MIN, MO). Figure 4.

Arbor usque 7 m alta; petioli minute puberuli; laminae 16–24 cm longae, supra glabrae, subtus puberulae; costa infra laminam latissima; cryptae stomatophorae 55–65 μm diametris, 22 μm altae, 60–70 in mm^2 ; sclerides terminales foliariae columnares. Fructus cauliflori, lutei, subglobosi, hypanthio et interdum aliquot lobis calycis coronati, ca. 10–17 mm diametris, 1–5-spermi.

Small tree to 7 m high; young twigs terete. Petioles 2.5–3 mm long, minutely puberulent; blades 16–24 cm long, 5.5–8 cm wide, ovate-elliptic to narrowly so, abruptly acuminate at apex, shallowly cordate at base with a notch 0.5–5 mm deep, glabrous above, puberulent below with hairs 0.1–0.2 mm long; midrib plane above, rounded and puberulent below and widest below the lamina; lateral nerves conspicuous above and below when dry. Stomatal crypts averaging in a leaf 55–65 μm diam., 22 μm high, 60–70 per mm^2 (extremes 20–120 μm diam., 20–25 μm high, 50–85 per mm^2); upper epidermis 1–2 cells thick in the same leaf, mucilage walls occasional in the single cells and the inner of the doubled cells; terminal sclereids mostly columnar in whole or in part, sometimes slanting, often branched at one or both ends or up to midway from the ends; hairs usually single, sometimes paired, then 1 long and 1 short, 1-celled but partitioned with numerous cross walls. Fruits cauliflorous, 1–9 per peduncle; peduncles up to 12 mm long to base of true pedicel including up to three internodes in that

length; fruiting pedicels 2–2.7 mm long, minutely puberulent; fruits yellow, subglobose, drying subglobose to depressed obovoid, to ca. 17 mm high, 20 mm diam., crowned with the free hypanthium and sometimes one or more calyx lobes, minutely puberulent below and above; fruiting free hypanthium 3.7–4.5 mm long when dry, 4.9–5.4 mm long boiled and presumably when fresh, the outside diameter 5.7 mm dry, 7.1 mm boiled; calyx lobes before anthesis (as seen on young fruits) triangular, minutely puberulent, 2 mm long, 1.6–1.7 mm wide, ca. 5 mm long when measured from the stamen attachment, the calyx splitting apart at anthesis a further distance of 2.2–2.7 mm. Seeds 1–5, brown, polished, 9–10 mm high, 8–9 mm wide, 6–7 mm thick, with one or more irregular incomplete horizontal creases below the middle, the basal hilum as wide as the base of the seed.

Distribution. Tropical forests in far western Amazonia, one locality in the far southeast corner of Colombia near Leticia, the other in mid-eastern Acre near the Amazonas border.

The new taxon falls in or near *Mouriri grandiflora* by virtue of its leaf size and shape, tubular midrib xylem, simple stomatal crypts, epidermal structure, lack of a hypodermis, and the close resemblance of its fruiting calyx, fruits and seeds to those of *M. grandiflora*. From the latter species and all others the new group differs in its puberulent lamina; the larger stomatal crypts and midrib shape also distinguish it, and the thick columnar sclereids are extreme for the species. The only other species in the genus with any pubescence on the leaf is *M. myrtilloides*, in which only the midrib is puberulent, and that species is in a different section and bears little resemblance to *M. grandiflora*. However, puberulence or hints of it occur occasionally in *M. grandiflora* subsp. *grandiflora*. Two collections (*Prance et al.* 25775 and *Vasquez et al.* 11298) were noted to have papillae or very short hairs up to 0.07 mm long on the under-midrib only, and several collections have low papillae on the lamina. The papillae are 9–18 μm long with at most a single cross-wall: these plants resemble subspecies *grandiflora* in all other respects: they have no stomatal crypts or small very shallow ones, and their sclereids are usual for the species. The crypts of the new subspecies average 55–65 μm diam., while those of the main subspecies are 25–40 μm . A further difference is apparently found in the rounded under-midrib, which is widest below the lamina, a peculiar feature not noted in subspecies *grandiflora*, although it may have been overlooked.

The overall resemblance between the two taxa

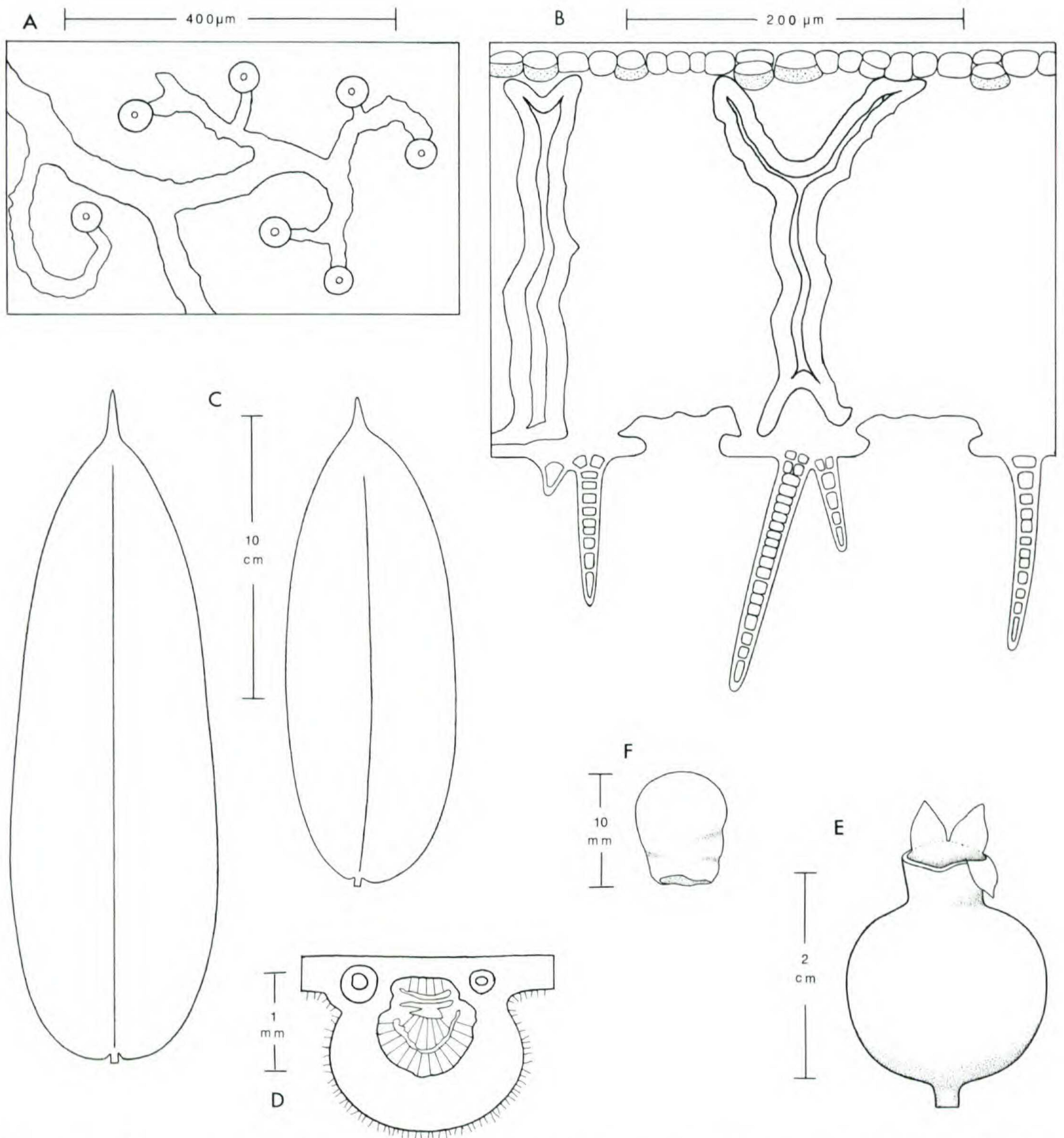


Figure 4. *Mouriri grandiflora* DC. subsp. *puberula* Morley (Rudas et al. 1584). —A. Cleared part of leaf blade showing veins and terminal sclereids. —B. Cross section of leaf blade showing sclereids, stomatal crypts, upper epidermis, and hairs. —C. Leaves. —D. Cross section of leaf midrib. —E. Fruit. —F. Seed.

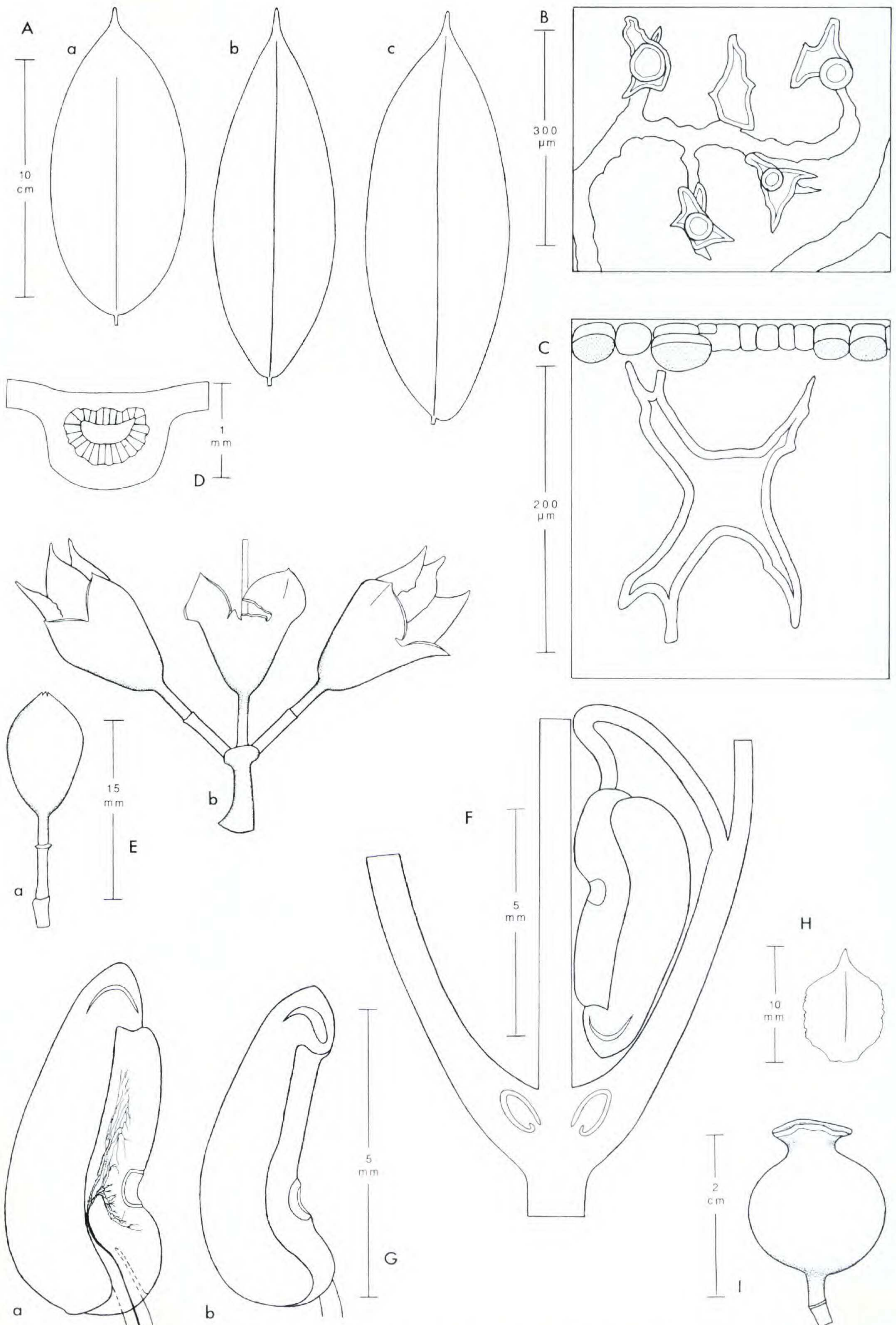
suggests that in prudence they should be considered as part of a single, variable complex. At the same time, in view of the distinct gap between them in pubescence and stomatal crypts and the hard-to-evaluate differences of midrib shape and foliar sclereids, as well as the present lack of information on petals, stamens, and ovary, the possibility remains

that in the future it may be necessary to elevate the rank of the new group.

Paratype. BRAZIL. **Acre:** Municipio de Sena Madureira, a 4 km da margem direita do Rio Iaco, 5 Oct. 1980, C. A. Cid & B. W. Nelson 2786 (MIN, NY).

With the recent rediscovery of *Mouriri tess-*

Figure 5. *Mouriri tessmannii* Markgraf. —A. Leaves (a, Palacios et al. 3365; b, Gudiño 127; c, Espinoza 57). —B. Cleared part of leaf blade showing veins and terminal sclereids. —C. Cross section of leaf blade showing sclereids and upper epidermis. —D. Cross section of leaf midrib. —E. Inflorescences: a, flower just before anthesis; b,



inflorescence at anthesis. Some divisions of the calyx are two calyx lobes wide, some only one. —F. Longisection of flower before anthesis. —G. Anthers: a, cleared and expanded in NaOH showing the veins (boiled anthers take the same shape); b, dried. —H. Petal. —I. Immature fruit (*Palacios et al.* 3365). (B–H are *Gudiño* 127.)

mannii after the destruction of the holotype and only specimen at Berlin in World War II, it becomes necessary to designate a neotype.

Mouriri tessmannii Markgraf, Berlin Univ. Bot. Gard. Notizbl. 9: 1147. 1927. NEOTYPE: Ecuador. Napo: Cantón Orellana, Sector Huashito, 20 km al norte de Coca, Propiedad de PALMORIENTE, 00°20'S, 77°05'W, 250 m, 3–21 Nov. 1989, *Edgar Gudiño 127* (neotype, MO; isoneotype, MIN). Figure 5.

The following description is based on the three extant collections; characters of the holotype agree so far as can be determined, except where indicated:

Small trees to 8 m high with trunks to 7 cm diam., the holotype from a tree with a trunk 27 cm diam. and not-very-hard reddish wood, the branches in the latter tree beginning at 5 m above the ground; bark scaly; young twigs rounded; plants glabrous except for the inflorescence. Petioles 2.5–3.5 mm long; blades dark green above and very smooth when fresh, light green below, coriaceous and brittle, 11–19 cm long, 4.2–7 cm wide, elliptic to ovate-elliptic, usually narrowly so, abruptly acuminate at the apex, acute to rounded or abruptly so or nearly truncate at base, sometimes oblique and half-cordate on one side; midrib plane to slightly rounded or very slightly sunken above, prominent and rounded to slightly 2-angled below; lateral nerves slightly visible above and prominent below when dry; surface view of blade at 50× with irregular curving rows of shiny rounded bumps, the rows often crossing at various angles, each bump apparently an epidermal cell. Midrib xylem tubular; stomatal crypts none; upper epidermis lacking all pigments, appearing as a dull white layer in unstained hand-sections at 50×, varying from 1 to 2 cells thick in the same leaf, mostly one cell thick, mucilaginous walls common, mostly in the single cells, less often in the inner of a pair; hypodermis none; terminal sclereids stellate with a strong columnar tendency, the central body 1–4 times as long as wide, often the whole sclereid columnar with sharp arms at each end. Inflorescences on trunk or on leafless branches as little as 5 mm thick, 1–5 per side, each 1–3-flowered, 2–10 mm long to base of farthest pedicel measured along the axes (12–15 mm in the holotype) and with 1 or 2 internodes in that length; bracts 1–1.5 mm long, triangular, acute, early deciduous. Flowers pentamerous; true pedicels 2.5–5 mm long; pedicels and lower part of ovary and calyx minutely puberulent; calyx including inferior ovary yellowish green to yellow, 10–13 mm long, obovoid (14–15 mm long and ellipsoid in the holotype), the lobes nearly com-

pletely fused, their free tips 0.3–0.8 mm long, 0.4–0.8 mm wide, the calyx bursting at anthesis usually along some or all of the fusion lines into 3, 4, or 5 ovate-triangular acute lobes of single or double width, sometimes breaking more irregularly, the single lobes 3.3–5 mm long by 3–4.8 mm wide, the double ones 3–4 mm long by 5–7 mm wide; the longest torn edge 4–5(–6) mm; free hypanthium 4–5.7 mm long; calyx limb 4–5.5 mm long as measured from the stamen attachments. Petals purple (“morados”) or rose (holotype), separate in the neotype, reported connate in the holotype, elliptic-oblong or elliptic-ovate with the margin irregularly crisped, reported triangular in the holotype, 9.5–10.5 mm long, 6–7 mm wide, acuminate, with a basal claw 0.5–2 mm long by 2.5–4 mm wide. Filaments 10–12 mm long; anthers 5.5–6.4 mm long; thecae 5.5–6.2 mm long, dehiscing by apical slits; gland 0.3–0.6 mm long, 3.5–4.1 mm from apex of anther when measured from center of gland; cauda none; anther shrinking conspicuously in width (theca to gland) on drying so as to change the appearance of the anther and increase the width of the pores. Ovary 5-locular; ovules axile-basal, produced only outwardly from each placenta, 4 per locule; style 19–22 mm long. Fruit subglobose, crowned with the hypanthium and remains of the calyx, 12–ca. 20 mm high excluding hypanthium and calyx, 11–ca. 20 mm diam., 1–5-locular with 1 seed per locule, symmetric when 2–5-seeded, asymmetric when 1-seeded; partly matured seeds with the lower and only mature part polished all over, mature seeds said to be cuneate in the holotype.

Distribution. Primary tropical forests of east Ecuador and northwest Peru; soils red or black; 160–320 m.

Mouriri tessmannii is characterized in its section primarily by its lack of stomatal crypts and lack of pigments in the upper epidermis, by the nearly complete fusion of the calyx lobes in bud, which split apart variously at anthesis, and by the anther form, which changes noticeably on drying.

The identity of the three recent collections as *Mouriri tessmannii* is judged to be reasonably certain, although not an exact fit. The original description is brief; it omits the ovary characters and the anther detail and seldom gives exact measurements, while the photo does not include the petals and stamens, which were in a closed pocket. The three new collections are a good match among themselves. However, four of the discrepancies between these three and the holotype noted in the above description should be remarked on: these are the plant size, calyx and ovary shape, and petal shape and fusion.

The greater size of the holotype is probably not significant, since many species of *Mouriri* exhibit this great a variation, including a close relative, *M. grandiflora*. The ellipsoid shape of the calyx and ovary as opposed to obovoid does not appear insurmountable considering the size differences of the plants and the fact that they come from different parts of the geographic range. Petal shape is notoriously variable in subgenus *Mouriri*, and elliptic-ovate might be called triangular in less exact days. Only the petal fusion appears to be a major discrepancy. Markgraf termed the petals "inter se connata"; in 1927 that might for him have included a light adhesion, and an adhesion could have been caused by a sticky fluid of some sort. In view of the many features in common between *M. tessmannii* and the three collections in question, I conclude that the connate petal statement is a mistake. The petals are separate in all other known American species of the tribe; fusion would be a large departure from the norm and is hardly to be expected.

The three new collections are from an area well north of the type locality, the latter being at the mouth of the Santiago on the Marañón in Peru. *Palacios et al.* 3365 comes from east-central Ecuador about 365 km NNE by N from the type locality, and the other two collections are from a site 130 km north of the Palacios one. These are not unusual distributional gaps for species in this region, considering the difficulty of making adequate collections. The limited habitat data is congruent.

Previously (Morley, 1976), it was estimated from the description and photo that *M. tessmannii* belonged in subgenus *Mouriri* sect. *Olisbea*. This placement is substantiated by the neotype and other collections. Specifically, the species falls in the subgenus on the basis of its tubular midrib xylem, axile-basal placentation, polished seeds, common mucilaginous walls in the epidermis, and rose to purple petals. Characters placing these plants in section

Olisbea are the lack of stomatal crypts in large ovate-elliptic acuminate leaves, pentamerous flowers with long anthers and anther thecae, and calyx lobes nearly fully fused with the petals never protruding before anthesis.

In its section, *Mouriri tessmannii* is unique in its curious epidermis, which lacks all pigments; all the other species have a pigmented epidermis. Beyond this the species appears most similar to *M. rhizophoraefolia* and *M. completens* because of their closed calyces and large leaves lacking stomatal crypts. *Mouriri tessmannii* differs from *M. completens* primarily in having rounded to acute leaf bases, irregular calyx breakage, and different anther and fruit forms. From *M. rhizophoraefolia*, *M. tessmannii* departs in having larger leaves, less strictly columnar foliar sclereids, an acute apex to the closed calyx rather than acuminate, and a different anther form. The third species in the section with a closed calyx, *M. froesii*, diverges further than the preceding two, having stomatal crypts, a midrib that is grooved above and winged below, a different anther shape, and only four locules in the ovary. Although one's attention is drawn to the preceding plants by the common feature of sepal fusion, this feature may have evolved independently from a basal group, thus the true closest relationships may lie with species lacking that character.

Additional specimens examined. ECUADOR. **Napo:** Cantón Orellana, Sector Huashito, 20 km al norte de Coca, Propiedad de PALMORIENTE, 00°20'S, 77°05'W, 250 m (deflor), 3–21 Nov. 1989, *S. Espinoza* 57 (MIN, MO). **Pastaza:** Via Auca, 110 km al sur de Coca, a 10 km del Río Tigüino, Sector Cristal, 01°15'S, 76°55'W, 320 m, 7 Jan. 1989 (imm. fr), *W. Palacios, C. Iguago & F. Hurtado* 3365 (MIN, MO).

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